

ACVR Diagnostic Imaging Residency Training Program Application

This application is required for institutions desiring ACVR accreditation of a new residency training program and for institutions requesting re-accreditation of an existing program.

Before beginning the application process, all applicants should review the most recent version of the [ACVR Residency Program Essential Training Standards and Requirements](#) (RPE) document (accessed from the Essentials Homepage) in detail. Use the RPE as a reference when completing the application form, as the contents you provide herein will be evaluated by the Residency Standards and Evaluation Committee (RSEC) against the published RPE standards. This application form follows the headings of the RPE. All terms used in this application have same definitions as those in the RPE, and no information provided in the application form itself will supersede that published in the RPE. During the application review process, the Chair or Assistant Chair of the RSEC may contact the applicant for additional information or clarification.

**Note: If you wish to save your submission and complete it later, click the save button located at the bottom of the pages. You will be emailed a link to complete your form at a later date.*

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Program Summary

The Residency Director of the program is expected to be the primary applicant and contact person for this application. The Residency Director must be located at the primary training institution.

Institution Name	University of Missouri
Residency Program Director Name	Jimmy C. Lattimer
Residency Program Director Email	lattimerj@missouri.edu

Program Type

What type of residency program is being requested?

Traditional Residency Program

If approved, what is the proposed start date of this residency program?

Sunday, January 1, 2023

Objectives

Succinctly state the objectives of the training program.

1. To train graduate veterinarians in the interpretation of diagnostic imaging studies for entry into practice as a specialist in veterinary diagnostic imaging.
2. To provide the training in basic science and image interpretation to a level that the resident can pass the ACVR qualifying and certification examinations to become a Diplomate of the American College of Veterinary Radiology.

Training Period

What is the total length of the training program? 48

What is the anticipated length of supervised clinical training a resident will experience during this program? 42

Will the resident(s) in this program be eligible to take the ACVR Preliminary Exam in September of their third year? Yes

What are the responsibilities of the resident(s) during non-clinical portions of the program?

Study for boards
Conducting guided research
Preparation of papers for publication
Preparation of instructional materials for student instruction.

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Direction and Supervision

When calculating time commitment in this section, you may consider a 100% (full time) duty schedule to consist of 48 weeks per year with 8 hours per day or 40 hours per week.

Residency Director

Please review the Residency Director requirements and responsibilities in the [ACVR Residency Program Essential Training Standards and Requirements](#) (RPE) document. Note that the Residency Director will be required to provide at least 24 weeks of clinical duty per year in primary support of residents in this program and to meet all other qualifications of a Supervising Diplomate.

Is the applicant Residency Director for this program prepared to meet these requirements? Yes

What percentage of the Residency Director's time is committed to clinical service at the primary training institution? 80

How many weeks per year will the Residency Director be on clinical service and teaching residents at the primary training institution? 44

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Additional Training Diplomates

Please review the definitions and responsibilities of [Supervising Diplomate and Supporting Diplomate](#) in the RPE document. Note that Supervising Diplomates will be required to provide at least 10 weeks of clinical duty in primary support of residents in this program, and are expected to participate in all facets of residency training. Supporting Diplomates aid in residency training, but provide support that is limited, as by modality (e.g. only works in ultrasound), time commitment (e.g.

clinical duty < 10 weeks per year), or other constraints that prevent them from qualifying as a Supervising Diplomate.

Provide a copy of affiliation agreements with any diplomates that are located at an external institution (see Affiliation Agreement item at the end of this section).

Excluding the Residency Director, please list all training diplomates who will act as Supervising Diplomates of this residency program. Indicate the approximate number of hours per year each supervisor will be scheduled on clinical duty with primary support of residents and, if applicable, any specific areas of instructional responsibility (e.g. trains mostly in small animal, trains mostly in MRI, etc). If a 'Supervising Diplomate' position will be comprised of multiple radiologists, please list the cohort as a single entity or institution for this question (e.g. "teleradiologists" or private institution name)

Name: Jodi Matheson

Hours/Year: 1600

Specific Areas and/or Limitations of Instructional Responsibility: Special emphasis on Ultrasound but participates in all modality training

Institution: University of Missouri

Name: James Karna

Hours/Year: 1500

Specific Areas and/or Limitations of Instructional Responsibility: Special emphasis on interventional procedures but participates in training for all modalities

Institution: University of Missouri

In addition to ACVR/ECVDI Diplomates, the program must arrange for the resident(s) to have direct access to specialists in other areas. Please identify one member in each of the specialty colleges listed below that has agreed to support this program through clinical activity that allows regular interactions between the specialist and the diagnostic imaging residents (e.g. discussion of diagnostic work up, imaging findings, or patient outcomes, and/or participation in interdisciplinary rounds, etc). Indicate whether the specialist is located on-site at the primary institution at an external institution. Provide a copy of affiliation agreements with any non-ACVR/ECVDI diplomates that are located at an external institution (see Affiliation Agreement section at the end of this application). Upon completion of this application, the below individuals will receive an email requesting acknowledgement of their support of your residency program.

ACVIM Member Name

Joan Coats

ACVIM Member Institution

University of Missouri

ACVIM Member Email

coatesj@missouri.edu

ACVS Member Name

Anthony Mann

ACVS Member Institution	University of Missouri
ACVS Member Email	MannF@missouri.edu
ACVP Member Name	Sandra Sample
ACVP Member Institution	University of Missouri
ACVP Member Email	shsn68@missouri.edu

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Resident:Supervising Diplomate Ratio

The number of residents in the program cannot exceed twice the number of Supervising Diplomates **on-site**. Remote Supervising Diplomates will not count when calculating the maximum residents allowed in a given program.

What is the maximum number of imaging interns you will have enrolled in this training program at any given time?

6

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Facilities

Review the Facility Requirements listed in the RPE document. Note also that residents should have opportunities to be involved with image acquisition and protocol set-up.
Does this residency training program provide on-site access to modern equipment for the following modalities?

Digital or Computed Radiography	Yes
Fluoroscopy	Yes
Ultrasound with Doppler Capability	Yes
MRI	Yes
Fan-beam CT	Yes
Nuclear scintigraphy	Yes

Briefly describe how this program meets the facility requirements, including the specific type of CT and MRI units available. Explain how your program will train residents in modalities for which equipment is not located on site, providing affiliation agreements if applicable. (see Affiliation Agreement item at the end of this section)

CT Canon Aquilion One 640
CT Canon Celestion PET/CT
Canon Advantages Titan 3T MRI with full set of coils

Equistand II Scintigraphy unit with commercial acquisition Computer and 14x21 inch crystal.

Canon Infinix Cath lab

Canon 9E ultrasound (2)

Two small animal digital ultrasound units and 2 portable as well as to crane mounted digital x-ray systems with Canon Digital Acquisition systems in large animal/Equine clinic

All of these instruments are present in the hospital and are in daily use.

Please describe how residents will gain experience in image acquisition and protocol set-up for each of these modalities (excluding nuclear medicine).

Resident are required to learn all of the setup protocols and operation of all equipment during the first year of the program and are required to be able to perform all studies performed outside of normal clinic hours. This instruction is provided by Certified AART technologists who are also available for out of hours consultation. Faculty provide primary backup for the residents 24/7/365.

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Clinical Resources and Training Content

Review the clinical resource and training content requirements listed in the RPE document

What is the average annual caseload at the primary institution over the past 3 years? This number will include all patient visits whether or not they contribute to the annual imaging caseload. 15000

What is the average annual imaging caseload at the primary institution over the past 3 years? Each body region imaged for a given patient (e.g. thorax, abdomen, spine, etc) will count as a single study. 18000

What is the average annual imaging caseload at the primary institution over the past 3 years in the following categories?

Small animal radiology	10000
Large animal radiology	600
Abdominal ultrasound	2000
Non-abdominal ultrasound	200
Computed tomography	1000
Magnetic Resonance Imaging	700
Nuclear scintigraphy	150
Other (Specify)	PET & fluoroscopy 250

Indicate the approximate species breakdown of the imaging caseload at the primary institution in the following categories:

Small animals (canine, feline): 90%

Large animals (equine, bovine, porcine, etc.): 8%

Avian, Exotic, and Wildlife animals: 2%

Which of the following types of imaging cases will the resident(s) have direct, on-site exposure to at the primary institution during the residency program?

Echocardiography

Yes

Large animal ultrasound

Yes

Nonabdominal small animal ultrasound (i.e. cervical, musculoskeletal)

Yes

Food/fiber animal imaging

Yes

Exotics imaging

Yes

Teleradiology/Referral imaging

Yes

Explain how the resident(s) in this program will gain experience in any of the above types of imaging cases that are NOT available at the primary institution. Provide affiliation agreements, if applicable. (see Affiliation Agreement item at the end of this section).

All of the above are available in the hospital and all except echocardiography are routinely performed by the radiology department and reviewed by faculty. Echocardiographic studies are performed by the cardiologists and residents are rotated through that service to get experience in performing and interpreting studies.

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What percentage of the total imaging caseload at the primary institution results in a written imaging report being generated by either the residents or the training radiologist diplomates in this program?

98

If < 99%, please provide a brief explanation and account for this when calculating the number of cases that each resident will interpret.

Some imaging cases such as echocardiograms are not performed or interpreted by the radiology service on a routine basis. All imaging studies performed by the radiology service have reports generated by imaging residents or imaging faculty. All studies performed by the radiology service are reviewed by faculty.

What percentage of the preliminary reports generated from the imaging caseload are initially produced by the resident(s) in this program? 80

Does this institution concurrently support the training of diagnostic imaging interns? Yes

If yes, indicate the maximum number of imaging interns the institution will train concurrently, what percentage of the preliminary reports generated from the imaging caseload will be initially produced by the intern(s), and how this affects the resident imaging report caseload.

3 interns at maximum. About 15-20 percent of x-ray studies and 5 percent of ultrasound studies are interpreted/performed by interns. Intern reports are reviewed by faculty and residents during rounds. This reduces the imaging case reporting load for residents by perhaps 20 percent but residents also help interns generate reports for some case so still have some involvement

What percentage of resident-generated reports are reviewed by training diplomates prior to finalization of the report? 100

What is the average turnaround time for resident-generated preliminary reports to be finalized by training diplomates?

<48 hours on average

What percentage of all imaging reports (resident and diplomate generated) is finalized and available to requesting clinicians within 48 hours after the exam is submitted for radiologist consult? 99

Please describe how after-hours/weekend/holiday cases are handled at the primary institution. How does this affect resident-reported imaging caseload?

Residents are on call 24/7 for one week at a time and rotated equally between the residents. Faculty are on call for consultation with the resident 24/7 and this is rotated between the faculty. Reports for these cases are typically available by 12:00 on Monday.

For each category below, calculate the approximate number of cases that a single resident will interpret at the primary institution with radiologist feedback during the course of the entire residency program.

These numbers should be calculated using the annual imaging caseload adjusted to include only those with written reports generated by the residents. In general, this number should then be divided by the total number of residents in a program during a given year.

If external rotations for the resident(s) are employed to increase the resident caseload in any given category, please be sure to upload affiliate agreements that include the expected number of reports that residents can expect to generate (with radiologist feedback) for cases in those categories.

Small animal radiology 7200

Large animal radiology 450

Abdominal ultrasound 1600

Non-abdominal ultrasound	150
Computed tomography	1000
Magnetic resonance Imaging	600
Nuclear scintigraphy	200
Other (specify)	200 raptor studies and fluoroscopic swallowing studies

How many ultrasound exams will a single resident perform with radiologist supervision and feedback during the course of the entire program? Scans for which the resident writes a report but does not acquire images are excluded.

1200

Do residents in this program have ample hands-on training and practice opportunities to become proficient in the performance of ultrasound guided fine needle aspirates and biopsies?

Yes

Please indicate whether this training program includes formal courses in any of the following topics:

Physics of Diagnostic Imaging

Yes

Radiobiology

Yes

Nuclear Medicine

Yes

Ultrasonography

Yes

Computed Tomography

No

Magnetic Resonance Imaging

No

Other

Yes

Briefly describe the formal courses that are available for the resident(s) in this program by indicating the institution, course title, course number, and credit hours as well as any other relevant information. For any topics for which formal course work is not provided for the resident(s), please explain how educational objectives in these topics will be met.

Formal courses are presented by faculty in the above indicated categories.

Physics VMS8489 1 credit hour

Advanced techniques VMS7355 2 credit hours

Nuclear Medicine VMS8487 3 credit hours

Radiation Therapy VMS8488 2 credit hours
Radiation Biology VMS7328 3 credit hours
Introduction of Veterinary Ultrasound VMS8439 2 credit hours

Do residents have access to a majority of the written pathology reports that are generated from patients included in this imaging caseload?

Yes

Will the resident(s) in this program attain an advanced degree (MS, PhD) at the conclusion of the program?

An MS degree pursuit is encouraged. A 6 year residency/PhD combination is also possible

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Research Environment

Review the Research Requirements listed in the RPE document.

Over the last five years, what is the average number of peer reviewed publications on which the training diplomates (Supervising and Supporting diplomates) of this program are included as authors? (total number of publications in last 5 years among all training diplomates divided by the number of training diplomates) 2

How many peer-reviewed publications are expected of a resident completing the program? 1

If this is an established program, what percentage of residents have made formal research presentations at the annual ACVR or equivalent national meeting? 50

Briefly describe if/how residents are encouraged to engage in investigative work and what mechanisms are in place for training diplomates to support this work.

Residents are currently give 20% of their time off clinics to pursue investigative efforts. The residents must chose a research committee. Section and departmental funds are available to support small projects. Research activity is reviewed twice annually.

Educational Environment

Review the Educational Environment expectations listed in the RPE document.

Please list and enumerate the formal presentations that are expected of each resident during the course of their training. In general, didactic lectures, departmental seminars, scientific presentations, Continuing Education presentations, and similar are considered "formal".

Informal topic rounds, journal club, small group teaching (like student rounds), student labs, and similar events should not be included.

Residents are required to prepare and present to student 15 lectures during their program
Residents are required to present 4 seminars to the college faculty during their four years of the program.

Briefly describe the type and extent of teaching opportunities that are provided to the resident throughout the training program.

Residents participate fully in the instructional program of the clinical students including one one one and small group metoring

Residents are required to participate in laboratory session with the preclinical students during their 3rd year in the program

Briefly describe the nature and scope of the teaching file available to the resident(s) in this program and how it is maintained/updated.

Two digital teaching case files are maintained by the radiology service. In addition the digital image files for the last 15 years are searchable through the hospital information and PACS systems. PACS full reports are automatically provided for PACS searches.

How many Known Case Conferences are conducted annually? 44

Describe the nature and frequency of resident rounds ("other educational events") planned for this program. You may upload an example schedule with the general program schedule that is requested at the end of this application.

Rounds are held with at least one faculty member and all assigned interns and residents for that day at least 4 days per week. Rounds are typically 1hr45 min in length and involve review of case reports.

Describe how the resident(s) in this program will attain direct and consistent medical library access and/or how they will access research tools and medical literature including the suggested references listed in the ACVR Preliminary Examination study guide.

The College of Veterinary medicine maintains its own medical library in conjunction with the MU school of Medicine. Online access to all major and many other medical journals is provided through this library. Search assistance is available. In addition, residents have online access to all veterinary imaging journals and the Nation Library of Medicine medical database

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Evaluation and Protection of Residents

For existing programs, list the names, email contact information, and start/end dates of your current residents.

Melanie Anderson - andersonmn@missouri.edu 7/15/2018-17/14/2022 *

Gabriela Baers - baersg@missouri.edu 7/15/2019 - 17/14/2023

Fern Nelson - fnv3d@missouri.edu 7/15/2020 - 7/14/2024

Shayna Streu - sms3t2@missouri.edu 7/15/2020 -7/14/2024

Rachel Baumgardner - rmbxbf@missouri.edu 7/15/2021 - 7/24/2025

* ACVR Diplomate

Did all of your current residents adequately complete the last 6 months of training?

Yes

List the current members of the resident review committee.

Jimmy C Lattimer DACVR
Jodi M Matheson DACVR
James Karnia DACVR
Leah Cohn DACVIM
John Dodam DACVA (Department Chair)

Describe the internal mechanisms in place at your institution to protect the resident(s) if personal or organizational conflicts arise. Include the management hierarchy for residents and procedures by which residents would report workplace misconduct.

The University has well established guidelines for handling of disputes and workplace complaints that involve both Title IX and FMLA programs designed to protect members of the university community from misconduct by superior, peers and subordinates. The department chair is the first point of intervention but the support extends up through the chain of command to the University's general counsel.

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Appendix

Please provide the following information regarding preliminary and certifying board exam pass rates for residents in your program over the past five years.

Preliminary Board Exam Pass Rate

2020

Number Of Prelim Board Eligible Residents: 2

Number of Residents That Took Prelim Exam: 2

Number of Residents That Passed On 1st Attempt:
1

Number of Residents That Passed After Multiple Attempts: 1

Number of Residents That Have Not Passed: 0

2019

Number Of Prelim Board Eligible Residents: 2

Number of Residents That Took Prelim Exam: 2

Number of Residents That Passed On 1st Attempt:
0

Number of Residents That Passed After Multiple
Attempts: 2

Number of Residents That Have Not Passed: 0

2018

Number Of Prelim Board Eligible Residents: 2

Number of Residents That Took Prelim Exam: 2

Number of Residents That Passed On 1st Attempt:
0

Number of Residents That Passed After Multiple
Attempts: 0

Number of Residents That Have Not Passed: 1

2017

Number Of Prelim Board Eligible Residents: 2

Number of Residents That Took Prelim Exam: 2

Number of Residents That Passed On 1st Attempt:
1

Number of Residents That Passed After Multiple
Attempts: 0

Number of Residents That Have Not Passed: 1

2016

Number Of Prelim Board Eligible Residents: 1

Number of Residents That Took Prelim Exam: 1

Number of Residents That Passed On 1st Attempt:
0

Number of Residents That Passed After Multiple
Attempts: 0

Number of Residents That Have Not Passed: 1

Certifying Board Exam Pass Rate

2020

Number of Certifying Board Eligible Residents: 1

Number of Residents That Took Certifying Exam: 2

Number of Residents That Passed On 1st Attempt:
1

Number of Residents That Passed After Multiple
Attempts: 0

Number of Residents That Have Not Passed: 1

2019

Number of Certifying Board Eligible Residents: 3

Number of Residents That Took Certifying Exam: 3

Number of Residents That Passed On 1st Attempt:
1

Number of Residents That Passed After Multiple
Attempts: 1

Number of Residents That Have Not Passed: 1

2018

Number of Certifying Board Eligible Residents: 2

Number of Residents That Took Certifying Exam: 2

Number of Residents That Passed On 1st Attempt:
1

Number of Residents That Passed After Multiple
Attempts: 0

Number of Residents That Have Not Passed: 1

2017

Number of Certifying Board Eligible Residents: 0

Number of Residents That Took Certifying Exam: 0

Number of Residents That Passed On 1st Attempt:
0

Number of Residents That Passed After Multiple
Attempts: 0

Number of Residents That Have Not Passed: 0

2016

Number of Certifying Board Eligible Residents: 1

Number of Residents That Took Certifying Exam: 1

Number of Residents That Passed On 1st Attempt:
0

Number of Residents That Passed After Multiple
Attempts: 1

Number of Residents That Have Not Passed: 1

Program Schedule

Upload a schedule for your residents that outlines their clinical and non-clinical work over the course of the residency program. This may be a master schedule or duty roster for your entire radiology section, if desired. If available, an example weekly or monthly rounds schedule can also be included.

Program Schedule



Jnuary 2022 service schedule.docx



Radiology Residency Training schedulen 202...

Affiliation Agreements

Upload digital copies of any affiliation agreements that have not been included elsewhere in this document. Refer to the RPE document for an explanation of what information should be included in such agreements.